

**SEALED OPENING/CLOSING SYSTEM FOR PACKAGING BAGS**

The present invention relates to an opening/closing system for packaging bags in particular.

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Document FR 2 833 576 discloses the use of opening/closing systems for packaging bags comprising a planar base part defining at least in part an opening through itself, this base part comprising guide means engaging with guide means belonging to a slider capable of closing the opening or leaving it open, and the planar base part being designed to be attached to the wall of the bag in such a way that the opening which it defines coincides with an opening made in the wall of the bag.

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This type of opening/closing system can in particular be attached to a precut hole forming a strip designed to be torn off on first use. This precut hole thus safeguards the bag because a user can immediately see whether the bag has already been opened.

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Experience shows, however, that this precut hole includes orifices which make a satisfactory seal difficult to achieve. In addition, the opening/closing system itself leaves an unsealed passage through its opening.

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Since a sealed bag is desirable for reasons of preserving its contents, for example, an additional device must then be applied, such as a bonded or welded detachable film. However, this type of device is situated on the outside of the bag and can easily be damaged.

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It is also prior art to use devices that destroy the actual wall of the bag in a region where there is no area of weakness. Documents US 5 167 608, US 6 652 436,

US 6 273 607 and EP 0 485 741 may be cited in particular.

5 In the devices described in the documents cited above, cutting is difficult because the wall is set back from the opening of the device through which the cutting means passes. Moreover, the wall of the bag must give it its strength is therefore resistant to being cut.

10 It is therefore an object of the present invention to provide an opening/closing system with an improved seal, without adding any additional external device to the bag and without making it more difficult to use or to produce.

15 To this end, the subject of the present invention is an opening/closing system, particularly for packaging bags, of the type that comprises a planar base part defining at least in part an opening through itself, this base part comprising guide means parallel to the opening and engaging with guide means belonging to a slider designed to close the opening or leave it open, which system is characterized in that, before the system is used for the first time, the opening is  
20 closed at least partly by a layer of material, and in that the slider comprises a cursor directed toward the opening and capable of at least partly destroying the layer of material to open the opening when the slider is moved for the first time.

30 These provisions achieve the object indicated above. The layer of material can be of a predetermined strength so that it cuts easily, as it does not have to maintain the integrity of the bag. This layer of material is situated directly in the opening, an  
35 optimal position for cutting.

The layer of material is advantageously part of the same molding as the base part.

In one embodiment the layer of material has an area of weakness where it is thinner.

5 The area of weakness advantageously extends approximately the full length of the opening.

In one embodiment, a housing for the cursor is provided in the layer of material, the dimensions of this  
10 housing being slightly less than the dimensions of the cursor, and the latter being force-fitted into the housing.

The housing is advantageously situated at one end of  
15 the opening, and the cursor faces this housing in the closed position of the cursor.

The present invention also relates to a packaging bag equipped on at least one of its walls with an  
20 opening/closing system described above.

The opening/closing system is advantageously attached to the inside face of one wall of the bag by the planar base part, the slide being situated on that side of the  
25 planar base which is turned toward the wall, and the system being positioned in a precut hole formed in the wall.

The present invention also relates to a film for  
30 forming the walls of a packaging bag comprising at least one opening/closing system.

This film is advantageously presented in the form of a  
35 reel.

A clearer understanding of the present invention will be gained from a reading of the following description with reference to the accompanying drawing showing an

embodiment of an opening/closing device according to the invention.

Figure 1 is a partial view of a bag to which is  
5 attached an opening/closing system according to the invention.

Figure 2 is a partial exploded perspective of an  
opening/closing system according to the invention, in  
10 partial cross section.

Figure 3 is a top view of the system shown in figure 2.

Figure 4 is a cross section taken on IV-IV as marked in  
15 figure 3.

Figure 5 is a cross section taken on V-V as marked in  
figure 3.

20 Figure 6 is a view similar to figure 5, the system  
being shown during its initial opening.

Figure 1 shows a bag 2 that has two walls 3 attached to  
each other, one of these walls 3 comprising an  
25 opening/closing system 4 attached to the inside side of  
an opening 5 in this wall 3.

This opening/closing system 4 can, as described in  
document FR 2 833 576, be attached in a precut hole  
30 defining a band with rounded ends, which are cut out  
and can therefore be lifted and grasped to remove this  
band by pulling it out by hand, removal of this band  
thus defining the opening 5 in the wall 3 of the bag 2.

35 The first time he uses it, a user can therefore remove  
the band by pulling it off, and then open and reclose  
the bag using the opening/closing system 4.

As shown more particularly in figure 1, the opening/closing system 4 comprises a base part 7 defining at least in part an opening 8 through itself, this base part 7 comprising guide means 10 parallel to  
5 the opening and engaging with guide means 12 in a slider 9 that can be used to close the opening 8 or leave it open.

Before it is used for the first time, the opening 8 is  
10 closed by a layer of material 13 that is part of the same molding as the base part 7, as shown in figures 2 - 6.

The slider 9 comprises a cursor 14 directed toward the  
15 opening 8 and designed to at least partly destroy the layer of material 13 in order to reveal the opening 8.

A housing 15 for the cursor 14 is provided in the layer of material 13, the dimensions of this housing 15 being  
20 slightly less than the dimensions of the cursor 14, and the latter being force-fitted into the housing.

The cursor is situated at one end of the slider when the slider is in the closed position of the opening 8,  
25 and the housing 15 is also situated at one end of the opening 8.

To facilitate the destruction of the layer of material 13 by the cursor 14, the layer of material has an area  
30 of weakness 16 where it is thinner.

This area of weakness 16 extends approximately the full length of the opening 8.

35 The cursor 14 also serves advantageously as an end stop against the opposite end 17 of the opening 8 from that containing the housing 15, in order to limit the range of movement of the cursor 14.

The layer of material 13 seals the opening 8. The housing 15 is slightly smaller than the cursor 14 so that when the latter is forced into it it seals the housing 2, which can therefore be a through hole.

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The cursor 14, in this embodiment, is in the shape of a parallelepiped which is easy to produce and allows good contact, and therefore a good seal, with the walls of the housing 15. Other forms of this cursor may be used  
10 as alternatives, notably beveled shapes to facilitate the destruction of the layer of material 13. The shape of the housing 15 will in this case be adapted to present a complementary shape.

15 In the embodiment shown, the slider has a tab 18 at each end for the user to grip in the hand.

It is also possible to make the layer of material by adding it after manufacturing the base part. However,  
20 this considerably complicates the manufacture and increases the cost of this part.

Figure 6 shows the destruction of the layer of material 13 when the system 4 is opened for the first time.

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It is advantageous to provide the film for forming the walls of a packaging bag with opening systems 4 described above before forming it into the bags 3. In particular, the bag can be presented in the form of  
30 reels which can then be used on known bag making machines.

It goes without saying that the invention is not limited to the preferred embodiments described above by  
35 way of non-restrictive example; on the contrary, it encompasses all variants that come within the scope of the following claims.